

**Analysis and Design of  
Systems for Monitoring and  
Evaluation of Research and  
Extension Services and  
Impacts**

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## **Executive Summary**

Agricultural research and extension services are critical to sustainable rural social and economic development. In the Chapare region of Bolivia the challenges are particularly great as the local economy is being transformed and restructured from one based on illicit production of coca and to one based on diversified production including banana, palmito, maracuya, black pepper, pineapple, rice, corn, cassava, beans and others. New research and extension initiatives in international cooperation are being implemented which are client-directed and results-oriented. In the process, systems design and methods for monitoring and evaluation are critical to help guide the process to a successful conclusion. A multi-method strategy involving both quantitative and qualitative indicators is proposed for monitoring processes and impacts at the community and household levels of analysis. This report describes the activities, observations, analysis, ideas and suggestions developed through collaboration with international and Bolivian partners during the period December 1999 to February 2000.

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## **Section 1: Terms of Reference**

This report is a preliminary draft. It presents progress on the scope of work (see appendix) that is planned as over a period of three months (December 1999 – February 2000).

The objectives of this report are:

- 1) to develop a system including methods, indicators and frequencies of measurement, to monitor and evaluate the future impact of IBTA's research
- 2) to develop a similar system that will allow IBTA, farmers, and extension service providers to monitor the technical performance of the extension system
- 3) to help develop the capacity within IBTA to apply the evaluation systems and analyze and interpret the results.

## **Section 2: Analysis of current operations and systems**

Design and implementation of an integrated monitoring and evaluation system for research and extension requires four key steps. The first step is gaining an understanding of program goals and operations through observations, interviews and review of available information. The second step is identifying indicators of performance and impact appropriate for the context of the project. The third step is to validate the indicators with project stakeholders and beneficiaries. The final step is to incorporate the new indicators into a revised system for evaluation. The procedures and issues described in this report are intended to lay out options for consideration and future development.

### **Review of documents and databases**

DAI project documents provide basic information on project objectives, structure, and tasks. Particularly important for this report are the documents pertaining to program indicators that have been predetermined. The program indicators, which will be discussed in detail in subsequent sections of this report, constitute a results-oriented framework for program monitoring and evaluation.

At the field level, the IBTA research station at La Jota has a small library that contains useful information of a more technical nature. The extension field offices maintain a variety of information, including the activities of farmer associations, their membership data, reports from individual farmers, training events and participation. The administrative units of some of the farmer associations have records of sales of selected commodities. Some also have records of reinvestment funds.

Clearly, there have been substantial efforts made in the past years to install computer systems to facilitate the work of IBTA. MS-ACCESS is the database management tool throughout the various projects including their field offices. Research and extension workers collect information submit it for processing at independent PC-stations and data exchange takes the form of physical transfer of file copies on floppy disks. As part of the project, a major effort is underway to update and improve the hardware and software infrastructure while at the same time maintaining continuity and compatibility with current systems for reporting research and extension data at the field level (See PMIS, Oracle, Dec. 1999). The "new" system will be fully integrated including among others the following modules:

Agricultural Extension Module

## Research and Planting Material Module

With respect to content, the “old” information system reflects the orientation of the project as it was conceived in the period 1992-1998. The system had grown in response to diverse user needs and requests. The system is dynamic, in the sense that information elements can be added or deleted at any time by the information systems manager. But except for periodic reporting on a few of the data elements, it is not clear how the old system was or is being used. Substantial revisions are necessary to adequately reflect the new needs of a performance-based system for program monitoring and evaluation. This report is intended to address issues of content to be incorporated into the new models for agricultural research and extension.

Since the new extension service providers joined the DAI project beginning in late December 1999, the four extension companies have been engaged in processes of orientation and training with respect to their roles. One of the most critical roles, in addition to technology transfer to farmers, is serving as information gatherers and information users. As such, their experience and input in design of monitoring and evaluation systems are critical to achieving the necessary cooperation and integration between the field level of operations and the management and policy functions of the project. Once the systems designs are approved, further training will be required to assure a uniform and reliable reporting of project results. In 2000, it is planned that an improved information system for performance monitoring (PMIS) will be implemented.

In the context of the Chapare, information is difficult and costly to obtain. Clearly, some information is more difficult and thus costly to generate than other information. Careful analysis of information costs and information utility would be useful to establish an optimal set of indicators, meeting institutional needs within reasonable costs.

### **Interviews with leaders of key project units and partner organizations**

Interviews with DAI project leaders helped the consultant to understand how the project vision is taking shape, in terms of operational strategies. Clearly this is an evolving process of development. There are many uncertainties. Some of the uncertainties will be resolved once all the project actors are in place, these are matters subject to project control. Other uncertainties such as instabilities in markets and biological events (such as outbreaks of plant disease) are not subject to control, but nevertheless, DAI project leaders will need to respond with agility to factors as they arise. Frequent and regular strategy discussions between DAI project leaders and partners are needed to coordinate field strategy, including how to respond to events as revealed by field indicators generated by the monitoring and evaluation system.

It is clearly evident that IBTA benefits from collaboration with other CONCADE projects to develop systems that are capable and compatible with other projects. There is a remarkable spirit of cooperation between the various components comprising the CONCADE program as well as with other projects operating within the area. At the level of the director there is a requirement for program level indicators of progress and results. At the program level there is a need to supervise field extension activities and evaluate performance at a more detailed level, sufficient to provide guidance and signal problems as they may occur. Given the different responsibilities of the various projects, there are ample opportunities for the projects to develop systems components that address their specific needs while at the same time providing crucial information to other projects and the periodic reports required for overall systems accountability.

### **Meetings with field agents**

At the time of our first field visits, IBTA was operating under a temporary and reduced extension presence. Contacts with farmer associations were being maintained, but at a reduced intensity than is planned under the current project. By February 2000, considerable change in the extension presence had occurred. Four extension firms were in place and had completed training and field exercises including participatory diagnostic studies of farmer associations. They are off to a good start, but the hard work of technology transfer has not yet begun and there is much work yet to do before the extension providers will be fully functioning in their intended roles. As mentioned previously, one of the roles of the extension service providers is to provide systematic information on results and impacts. A meeting with all the extension providers provided a general orientation and exchange of views on how to implement a performance-based system for evaluation of extension. Two follow-up meetings were planned and conducted—one with targeting more advanced farmer associations and the other target extension for less developed farmer associations. Although there is naturally some apprehension to the imposition of performance-based evaluation, the meetings produced many ideas that merit consideration.

### **Meetings with farmers and farmer associations**

Farmers and farmer associations run the gamut from the few relatively well established operations with demonstrated capacities to produce for local and export market to the many marginal farming systems with uncertain future. The fundamental question is can the non-viable and non-sustainable farming systems be converted to more viable and sustainable operations within a period of four years. Clearly, technical and managerial capacities will have to improve markedly to achieve the project targets.

## **Section 3: Design of monitoring and evaluation systems**

At the program level performance indicators have been predetermined along with specifications with regard to their unit of measure, their source, frequency and target levels (See Contract Document). As such they are intended to serve the needs of CONCADE program leaders, government policy-makers, and international donor organizations. They are all specified in quantitative terms and include a baseline and target levels for future years. Many of the program indicators are derived from data systems descriptive of processes and conditions of communities/associations and individual farms. Therefore, much of the burden for collecting the data necessary to estimate these indicators at the program level falls on the extension service providers. The quality of the data and the precision of the estimates for the indicators will depend on the methods and careful attention of extension providers.

### **Quantitative Program-Level Indicators (See CONCADE RESULTS PACKAGE)**

**Of the following program indicators, only those in bold print are within the responsibility of the extension system. Consistent with the documentation of the CONCADE Results Package, some of the indicators are derivatives of other indicators. Frequency, source and methods are available in the above reference document.**

**Objective 1: Sustainable farm-level production capacity for licit crops established**

**Indicator 1.1.1 Families participating in coca-free areas/agreements**

**Indicator 1.2.1 Increased hectares of licit crops sustainably planted**

**Indicator 1.3.1 Farmer organizations graduated CONCADE assistance**

Indicator 1.3.2 Overall subsidies on productive infrastructure reduced

Indicator 1.3.3 Local capacity for sustainable maintenance of roads

**Objective 2: Sustainable market linkages established**

Indicator 2.1.1 Average annual income per capita

Indicator 2.2.1 Domestic agro-businesses purchasing and selling

**Indicator 2.3.1 Agro-businesses exporting**

**Indicator 2.4.1 Market value of licit products**

Indicator 2.5.1 Exports of licit produce

Indicator 2.6.1 Licit agricultural-based employment

Indicator 2.7.1 Licit non-agricultural-based jobs

**Objective 3: Alternative development organizations strengthened**

**Indicator 3.1.1 Number farmer organizations self-financing**

**Indicator 3.2.1 Number of organizations paying for technical assistance**

**Indicator 3.3.1 Research activities completed, validated and adopted**

**Indicator 3.4.1 Increased average annual yield of promoted crops**

**Objective 4: Private sector investment stimulated**

Indicator 4.1.1 Credit applications favorable reviewed by USAID/GOB

Indicator 4.2.1 Firms receiving loans from investment fund

## Qualitative Measures of Community and Family Impact

Based on the considerable experience of DAI, USAID, the World Bank, Inter-American Foundation and others, it is clear that project impacts are diverse and are manifest in economic, social and environmental effects. Some of the most important impacts may be the most difficult to measure. In the context of CONCADE/IBTA this is especially pertinent because project performance will be measured in relation to the degree that it achieves targets in restructuring the civil society, building economic security and providing for sustainable flow of social and economic benefits into the future. These are not trivial undertakings and they don't always lend themselves to simple quantitative measures. Therefore, qualitative assessments are needed in addition to the quantitative indicators. The qualitative indicators will be particularly useful when monitoring progress of program activities at the levels of the community and the farm.

Particularly at the community and farm level, additional information is required in order to manage efficiently research and extension activities. Necessarily, the design of the system involves choices in the kinds of indicators that will best reflect program processes and impacts at the various levels. Subsequent sections of this report will identify indicators (data elements), formulate methods and procedures for collecting periodic data on selected indicators at the community and individual levels. These data will have utility at the local level and will also feed into a system for analysis at the program level (See Table 1).

**Table 1: Overview of Indicators by Levels and Types**

INDICATORS	QUANTITATIVE	QUALITATIVE
Region/program	As Specified in the Project Document	
Community/Association	Assoc. graduated Reduction in subsidies Income generation Technical assistance paid Increase in product exports Capital accumulation Local promoters	Administrative capacity Resource mobilization Gender equity Vision Solidarity
Family	Families Increase in areas of prod. Employment generation Increase in crop yields Increase in income Adoption of technology	Farm-management capacity Technical capacity Access to technical help Confidence Motivation <b>Food Security</b> Quality of life Innovation Problem solving/reflection

## Section 4: Design for Monitoring and Evaluation of Extension Services

Based on the review above, it is clear that the new system will need to be more client-driven, more focused on results and more detailed with respect to social and qualitative factors. Extension agents will play a crucial role in validating the indicators and the methods proposed. Adjustments in the evaluation system will need to be made based on the field experience of the extension providers during the first year of operations. Data gathered at the family level will be analyzed and used to estimate impact at the family level. Family-level data also will be aggregated to for community-level analyses. For example, means and standard deviations in crop yields determined from surveys at the family level can be used to estimate total volume of crop production of an association or project region based on independent estimates from satellite or other sources of area of crop production. In a similar way, gains in net income achieved by family farmers can be estimated from crop volume and actual market values of common factor inputs and products. From these data it will be possible to assess the differences in benefits achieved by farmers and organizations who participate actively in the CONCADE activities (receiving services, paying quotas, etc.) and those who do not.

### Measuring Intermediate Processes and Impacts

Qualitative measures can be scaled in a variety of ways. In the context of a development program, the primary focus is on change from baseline. Therefore, the following indicators are stated in a form where they can be scored on a simple scale:

**not improving=0; improving=1.** This system provides the essential information to correct problems (where the indicator is not improving) and to recognize and reinforce positive results (where the indicator shows improvement). Extension providers and their clients can discuss each of the following indicators on a quarterly or semi-annual basis and come to a consensus about how to score the organization/association or family unit on each item. These scores can be made a part of the regular reporting process of the extension service providers and included as new information elements within the PMP database.

#### At the Community Level

**Administrative capacity for planning and evaluation.** Specific indicators of progress may include the following:

- Systematic record keeping system (not improving/improving)
- Written organizational goals or priorities (not improving/improving)
- Criteria for resource allocation (not improving/improving)

**Resource mobilization.** Refers to the improving capacity to obtain financial, material or human resources from various sources.

- Resource mobilization (not improving/improving)

**Participation and gender equity.** Refers to the extent to which the activity is improving its inclusiveness and participation of gender and minority populations in:

- Organization leadership (not improving/improving)
- Training (not improving/improving)
- Meetings (not improving/improving)
- Promoter positions (not improving/improving)

**Vision** (not improving/improving)  
**Solidarity** (not improving/improving)

### **At the Family Level**

#### **Farm-management capacity.**

Systematic record keeping system (not improving/improving)  
On-farm goals (not improving/improving)  
Motivation (not improving/improving)

#### **Technical capacity**

Knowledge acquired (not improving/improving)  
To access technical help (not improving/improving)  
Confidence (not improving/improving)  
Awareness of available technology (not improving/improving)

#### **Food Security (not improving/improving)**

**Innovation** (not improving/improving)

**Quality of life** (not improving/improving)

**Problem solving/reflection** (not improving/improving)

## **Section 5: Design for Monitoring and Evaluation of Research**

Research and related functions of validation, production and institutional strengthening are the essential foundation for sustainable production systems. Research can be viewed as generating stocks of new technology available for validation and subsequent application. Investments in research produce flows that add to and or replenish the stocks available. Client-directed and results-oriented research and validation are fundamental to the success of the CONCADE program.

The operational plan for the year 2000, contains a listing of the research activities. Activities are planned for each of the program crops, plus annual subsistence crops and multidisciplinary support services (plant pathology, integrated pest management, soils, plant production)

For each research activity (component) in the plan there is a stated objective, an expected result, an indicator and a budgeted value. The research activities are planned to advance and support the development of the program crops. The current system was designed to serve the needs of the researchers and their supervisors for managing research activities. The present system was not designed in a way that would track results of the research in terms of their social, economic or environmental impact. The indicators listed in the operational plan are very specific to the research activity and are not cross-referenced to the more global indicators of the program. In addition, there is confusion about what the performance monitoring and evaluation system will require in the context of the research, validation, production and training activities of IBTA.

Clearly, the most relevant program indicator in the new system relating to research is the activities completed, validated and adopted (Indicator 3.3.1). Research, validation and adoption are complex and difficult to evaluate. Technology is adopted in packets involving recommendations with regard to nutrient management, plant management, pest management, etc. Farmers may adopt all, some or none of the technical recommendations. They also may adopt but modify the recommendation, for example, they may apply a recommendation incompletely or without strict adherence to matters of timing, dosage, etc. Clearly, adoption

is not a dichotomous variable (**not adopt/adopt**), but rather there are degrees of adoption (**no adoption/partial adoption/complete adoption**) that reflect farmer attempts to maximize his/her private returns given constraints in capital, soils, labor.

Research planning, monitoring and evaluation go hand in hand. Feedback from the extension providers in combination with inputs from consultants and stakeholder groups is essential in the process.

It would be useful to score each of the research components proposed for the operational plan on the following set of questions. The scores would help to clarify the intended relationship between research and program indicators. The score for each question would be entered into the research database and serve as a benchmark for tracking the future research benefits. As technology is released for transfer, there should be programmatic follow-up on an annual basis addressing the same questions. In the follow-up, however, the questions will be scored from the perspective of the farmers with the help of extension service providers. The data generated by these processes will support comparative analysis of anticipated and actual results.

Table 2: Performance Indicators for Research

<b>Quantitative Indicator</b>	<b>Measures</b>	<b>Source &amp; Frequency</b>	<b>Qualitative Indicator</b>	<b>Measures</b>	<b>Source &amp; Frequency</b>
Research planned	# of new research components  # time and cost estimates to complete  size of target population for each technology component	Database/ Monthly  Database/ monthly	Performance-orientation & expectations	Ratings of relationship to performance indicators  Ratings of expected economic, social and environmental benefits	Interviews/ Semi-annual  Interviews/ Semi-annual
Research activities	# in progress  # completed	Database/ Monthly  Database/ monthly	Participation	Client-requested  Involvement of clients	Interviews/ Semi-annual  Interviews/ Semi-annual
Research validated	# completed	Database/ monthly	Linkages	# and quality of linkages with other institutions	Interviews/ Semi-annual
Research adopted	# of farmers with knowledge of validated technology  # of farmers, by gender, using validated technology	Interviews/ Semi-annual  Database/ Quarterly	Constraints  Quality of adoption	Ratings of problems that limit adoption  Ratings of partial/complete adoption	Interviews/ Semi-annual  Interviews/ Semi-annual

<b>Quantitative Indicator</b>	<b>Measures</b>	<b>Source &amp; Frequency</b>	<b>Qualitative Indicator</b>	<b>Measures</b>	<b>Source &amp; Frequency</b>
	investment in technology	Database/ Monthly			
	Increases in on-farm yields (kg/hectare)	Database/ monthly			
Production of vegetative material	# of vegetative units	Database/ Monthly	Quality of vegetative material	Recipient ratings	Database/ Monthly
	# of recipient associations	Database/ Monthly			
	# of recipient families	Database/ Monthly			
Training for clients	# of events	Database/ Monthly	Quality of training event	Participant ratings	Database/ Monthly
	# participants	Database/ Monthly	Multiplier effects—extent that participants transfer knowledge to others	Participant ratings	Interviews/ Semi-annual
	# demonstrating mastery of subject	Database/ Monthly			
	Time required to achieve mastery of subject	Database/ Monthly			
Consultation with others	% efforts allocated to consultation with farmers, extensionists, and others	Database/ Monthly	# and quality of consultation services	Beneficiary ratings	Database/ Monthly
Publication	# of technical publications produced	Database/ Monthly			
Requests for technical services	# of requests	Database/ Monthly			
Professional development	% of time allocated to professional development and institutional strengthening	Database/ Monthly			

## **Measurement of Indicators**

### **Research planned:**

Database of research components planned and updated monthly, including time and cost estimates for completion and size of the target population.

### **Research activities:**

Database of research activities in progress and completed, updated monthly.

### **Research validated:**

Database of research validated, updated monthly.

### **Research adopted:**

Number of farmers with knowledge of the validated technology based on interviews, updated every 6-months.

Number of farmers, by gender using validated technology from the extension database, updated monthly.

Investment in technology, from the database, updated monthly.

Costs expended in support of technology transfer, from the database, updated monthly

### **Production of vegetative material:**

Number of vegetative units distributed, by type, from the database, updated monthly.

Number of recipient associations and families, from the database, updated monthly.

### **Training for clients:**

Number of events and participants, from the database, updated monthly.

Number demonstrating mastery of the subject by test score or other appropriate criteria, from the database, updated monthly.

### **Consultation with others:**

Percent of efforts allocated to consultation with farmers, extensionists, and others, from the database, updated monthly.

### **Publication:**

Number of technical publications produced, from the database, updated monthly.

**Requests for technical services:**

Number of requests, updated monthly.

**Professional development:**

Percent of efforts allocated to professional development and institutional strengthening, from the database, updated monthly.

**Results orientation & expectations:**

Level of client demand for the research, by client type

Demand of small-scale farmers:	Low	Medium	High
Demand of larger-scale farmers:	Low	Medium	High

Extent to which the research component relates to program indicator (specify the relevant indicators)

Primary Indicator _____:	Low	Medium	High
Other Indicator _____:	Low	Medium	High

What is the expected time required to produce a validated result? \_\_\_\_years

What are the sizes of the expected research benefits in relation to the budgeted research costs?

Economic Benefits:	Small	Medium	Large
Social Benefits:	Small	Medium	Large
Environmental Benefits:	Small	Medium	Large

**Research participation:**

Involvement/participation of clients in research activities:	Low	Medium
High		

**Research linkages:**

List of linkages with other institutions.

**Constraints to adoption:**

Capital constraints:	Low	Medium	High
Factor constraints:	Low	Medium	High
Labor constraints:	Low	Medium	High
Other constraints:	Low	Medium	High

**Quality of research adopted:**

Level technology adoption:	Selective/Partial Adoption	Complete Adoption
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What is the expected future rate of adoption among the target population? \_\_\_\_%/year

What are the expected constraints to adoption? (Rate each of the following)

Capital:	Low input	Medium Input	High Input
Labor:	Low input	Medium Input	High Input
Other:	Low input	Medium Input	High Input

**Quality of training:**

Participant ratings of event quality:      Low                      Medium                      High

**Multiplier effects of training:**

Participant ratings of the extent to which knowledge gained through program training is transferred to others, updated semi-annually: \_\_\_\_\_(enter number of transfers)

**Quality of consultation services:**

Beneficiary ratings, updated monthly:      Low                      Medium                      High

## Section 6: Recommendations

Any recommendations at this stage are tentative, given the fact that the extension providers are only recently in place. It is important that the extension providers and other stakeholders share a commitment to the methods and indicators selected for systematic development.

Currently under consideration for recommendation are the following:

1. Implement regular and frequent high level discussions of project strategy to maximize performance with respect to project objectives.
2. Clarify the link between operational plans and performance-based measures of evaluation and make revision as necessary.
3. Set project priorities consistent with 1 and 2 above.
4. Coordinate with the Instituto Nacional de Estadística (INE) to obtain their June-July survey database for the Chapare region.
5. There is a future need to establish new connections, methods and working relationships between IBTA research and the extension providers. On-farm demonstration plots will be the primary instrument to bring together research and extension specialists with local leaders and farmers. Systematic input from extension for research planning and training activities is needed
6. There is a probable need to reassess the appropriateness of some of the performance indicators taking into consideration the feasibility of performance targets given factors beyond the control of the project. For example, market values of exports depend on market prices. Also the production for some of the larger, consolidated producers occurs within already fixed areas where yield and quality are more appropriate considerations than enlarging their areas of production.
7. Training of extension agents and managers is required to implement and manage the monitoring and evaluation system.
8. Qualitative indicators and/or methods of estimation will be required for farmers and farmer associations where the primary, quantitative indicator or method is not feasible. Typically the less developed farmers don't have the tradition or capacity or record keeping and *ex-post* surveys of farmers may not be very reliable with respect to estimates, e.g. income and crop yields.
9. Studies are needed to validate the quantitative and qualitative systems indicators.
10. Studies are needed to estimate the costs of information gathering in relation to the utility of information to users. On-going analysis of information supply and demand are essential to the system.

11. Extension services in the first six months of the year 2000 should emphasize diagnosis and reporting of farmers needs and concerns. In this same time period extension service providers should receive technical and systems training coordinated by IBTA so that in the second half of 2000, they will be sufficiently oriented and prepared for technical assistance roles.
12. Provide a international consultant (2-3 months) in the year 2000 to assist with continuing development and implementation issues relating to the evaluation systems for research and extension.

## **Section 7: References**

Fernandez, Juan (1997) Estrategias y metodologias de extension agricola para el tropico de Cochabamba. Prepared for USAID/Development Alternatives, Inc. Methesda Maryland.

Inter-American Foundation (1999) The grassroots development framework: Project objectives, baseline data and results report. Arlington, Virginia

Valadez, Joseph & Michael Bamberger (1994) Monitoring and evaluating social programs in developing countries: A handbook for policymakers, managers, and researchers. The World Bank, Washington D.C.

CONCADE/DAI (1999) Terminos de referencia para empresas privadas u ONG's extension agricola interesadas en trbajar con grupos menos avanzados de agricultores en la zona del tropico del departamento de Cochabamba.

Plan operativo 2000

CONCADE Results Package, 1998-2002

## **Section 8: Appendices:**

### **Scope of Work**

Research and Extension Evaluation Specialist

Number of Days: 23

### **Background/Justification**

The CONCADE-DAI project is focussed on developing commercially viable crops as alternatives to coca in the Chapare region of Bolivia. Critical task c) under Special Objective 1, “Sustainable Farm-Level Production Capacity for Licit Crops Established”, specifies that the project provide technical information and training to farmer groups in order to increase yields of the 5 major commercial product lines (banana, pineapple, heart-of-palm, black pepper, and passion fruit), other potentially important commercial crops, as well as subsistence crops.

Responsibility for generating and validating technical information and technologies lies with the Bolivian Institute for Agricultural Technology (IBTA) while technology transfer will be carried out by private sector extension service providers or NGOs. In some cases (e.g. on-farm trials and demonstration plots), the responsibilities for research and validation will be shared among IBTA and the extension service providers.

Both types of institutions need to be responsive to the needs of various actors along the agricultural production – commercialization chain, including farmers and agroindustries. This implies the periodic use of evaluation systems in order to monitor activities and results and provide feedback to the research and extension system. Evaluation systems, including simple, easily understood and interpretable tools, are needed in order to allow IBTA to monitor the effectiveness and impact of its own research and validation program, as well as the technical performance of the extension service providers.

### **Objectives**

The objectives of this short-term consultancy are:

- 1) Develop a system including methods, indicators and frequencies of measurement, to monitor and evaluate the future impact of IBTA’s research and validation program among direct users of technologies and information, i.e., farmers, extensionists, and agroindustry personnel.
- 2) Develop a similar system that will allow IBTA to monitor the technical performance of extension service providers
- 3) Help develop the capacity within IBTA to apply the evaluation systems and analyze and interpret the results.

### **Tasks**

The consultant will be expected to undertake the following tasks:

- 1) Familiarize himself with IBTA’s research and validation program, the work plans and goals of the extension service providers, and the goals and indicators contained in the Performance Monitoring Program of the CONCADE project.
- 2) Via interviews with IBTA clients and review of documents, formulate a system to evaluate the impact of IBTA ‘s research and validation program.

- 3) In consultation with IBTA, extension service, and DAI personnel, design and monitoring and evaluation systems for the research and validation program and the extension service providers. Such systems should contemplate the inclusion of indicators of tangible and intangible benefits. It may be helpful to consult the Grassroots Development Framework for monitoring project impact, developed by the Interamerican Foundation.
- 4) Train appropriate IBTA personnel in the use and interpretation of the monitoring and evaluation systems.

### **Outputs and Deliverables**

A report, written in English, on the impact of IBTA's research and validation program, due before departure from Bolivia

Two monitoring and evaluation systems: one for IBTA's research and validation program and the other for the technical performance of the extension service providers. Such systems should include a description of methods, indicators, frequency of measurement, and guidelines for interpretation.

Training of appropriate IBTA personnel in the application, analysis, and interpretation of the evaluation systems.

### **Timeframe**

The timeframe of the consultancy is December, 1999 to February, 2000 and a level of effort of 23 days is estimated. Time will be spent in the Chapare, in Cochabamba and Raleigh, NC.

### **Calendar of Activities of Consultant**

Sunday, Dec. 5	Depart RDU
Monday, Dec. 6	Arrive Cochabamba, briefing with DAI technical advisor, Larry Szott
Tuesday, Dec. 7	Meet with FAO project team in the morning; meet with Eduardo Velarde, DAI Director of Information and seminar on satellite imagery of the Chapare region.
Wednesday, Dec. 8	Continue discussion of existing data systems with the DAI Director of Information; Meet with Jose A. Infante, Administrative Director DAI/Bolivia; travel to the field operational office in Villa Tunari
Thursday, Dec. 9	Seminar with the technical staff at the La Jota experiment station in the morning; Meetings with Juan Fernandez, Extension Specialist, and Mario Zenteno, Agricultural Economist to review background documents, operations and systems

## **Continuation**

Friday, Dec. 10	Meet with FAO field officers to review systems and report Procedures, visit to the FAO nucleo in Chimore
Saturday, Dec. 11	With assistance of the DAI Grupo de Emergencia por Extension visits were made to two Farmer associations (Asociacion Bananeros de Ingavi B (ABIB) and Asociacion de Ayopaya); begin writing on the trip report
Sunday, Dec. 12	Review draft of the trip report with technical staff at IBTA/La Jota; participate in seminar on statistical design issues; travel to Cochabamba, debriefed Szott on field observations
Monday, Dec. 13	Review findings with DAI technical staff
Tuesday, Dec. 14	Depart Cochabamba; Arrive RDU
Monday, January 31	Review of extension service proposals (In Raleigh)
Tuesday, February 1	Review of program documents (In Raleigh)
Wednesday, February 2	Preparation of materials for field work (In Raleigh)
Thursday, February 3	Depart RDU
Friday, February 4	Arrive Cochabamba
Saturday, February 5	Travel to La Jota station for a meeting with the principals of the extension service providers. The meeting reviewed the purpose and general framework for project monitoring and evaluation. Discussion explored the feasibility of applying various quantitative and qualitative indicators in the context of extension.
Sunday, February 6	Follow-up meeting with CODELCA, the extension firm working with twelve advanced groups
Monday, February 7	Met with the entire research group at La Jota station to review the purpose and framework for project monitoring and evaluation. Follow-up meetings with the coordinator of the planning (Ricardo Alem) to review the structure and relationship between research components and quantitative indicators. Discussions explored the feasibility of applying various quantitative and qualitative indicators in the context of research, validation and production. Follow-up interviews with leaders of the priority commodity research areas; Banana (Rolando Escobar), Palmito (German Inturias),

Black Pepper (Arturo Quispe), Pineapple (Raul Mejia),  
Annual Crops (Eduardo Ayala)

### **Continuation**

Tuesday, February 8	Continuation of meetings with research program leaders: Maracuya (Raimundo Montano), Integrated Pest Management (Fernando Bohorquez) and Production (Mary Guevara); In the afternoon, follow-up meeting with the principals of the extensions service organizations serving the less developed farmer—INDASA (Mario Veizaga), WINROCK (Emilio Salaués), CIAPROT (Rene Marquez) to continue discussion of quantitative and qualitative indicators.
Wednesday, February 09	Review and analysis of the information gathered in the previous meetings and interviews; debriefed L. Szott on field observations
Thursday, February 10	Continue writing on a report including suggestions for monitoring and evaluation systems for both extension and research. Review draft of the trip report with technical staff at IBTA/La Jota; travel to Cochabamba.
Friday, February 11	Continue writing on trip report; meetings with E. Velarde and others at DAI headquarters.
Saturday, February 12	Depart Cochabamba

### **List of Important Contacts and Affiliations**

Eduardo Velarde (DAI)  
Larry Szott (NCSU)  
Juan Fernandez (IBTA)  
Mario Zenteno (IBTA)  
Raul Zegarra (CODELCA)  
Mario Veizaga (INDASA)  
Emilio Salaués (Winrock)  
Rene Marquez (CIAPROT)  
Rolando Escobar (IBTA)  
German Inturias (IBTA)  
Arturo Quispe (IBTA)  
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Raimundo Montano (IBTA)  
Mary Guevara (IBTA)  
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